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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/555,726

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Michael Zeitler

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EXAMINER

SELLERS, ROBERT E

ART UNIT

PAPER NUMBER

1796

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/555,726	<b>Applicant(s)</b> ZEITLER ET AL.	
	<b>Examiner</b> Robert Sellers	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 26-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/7/2005 &amp; 5/15/2006</u> .                               | 6) <input type="checkbox"/> Other: _____                          |

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 26-30, 33, 37, 44 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Sawko Patent No. 3,663,464.

1. Sawko (cols. 3-4, Examples 1-4) shows the catalyzed reaction of a mercaptan-terminated polysulfide and a bisphenol A epoxy resin with an ammonium salt of 4-nitroaniline-2-sulfonic acid at 38°C (col. 4, lines 6-7, 100°F). The broadly claimed quaternary ammonium compound encompasses the prior art ammonium salt even though it is designated as an intumescent salt.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34 and 45-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawko.

2. Claim 34 requires a stoichiometric molar ratio of polysulfide to polyepoxide of 1:2. Claim 38 denotes a 2- to 7-fold stoichiometric excess of component.

The examples of Sawko employ excess polyepoxide, although the specific molar ratio is not recited.

Art Unit: 1796

It would have been obvious react the polysulfide of Sawko with the polyepoxide in a molar ratio of 1:2 or at a 2-fold stoichiometric excess in order to obtain a catalyzed reaction product with optimal increases in adhesion and weathering (col. 2, lines 60-64).

3. Claim 45 defines the use of a mixture of polyepoxides. According to MPEP § 2144.06, "[i]t is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art."

In re Kerkhoven, 205 USPQ 1069, 1072, CCPA 1980 and In re Crockett, 126 USPQ 186, CCPA 1960.

4. Sawko in Example 5 replaces the bisphenol A epoxy resin with an epoxy novolac resin. It would have been obvious to combine the bisphenol A epoxy resin and epoxy novolac resin individually used for the same purpose in a coating, to form a third composition for the very same purpose.

5. Claims 46-49 necessitate carrying out the reaction in vacuo (claim 46, with stirring (claim 47), at from 40°C to 150°C (claim 48) and from 50°C to 70°C (claim 49). It would have been obvious to catalyze the reaction between the polysulfide and polyepoxide of Sawko at a pressure and temperature within the claimed parameters in order to hasten the reaction upon application to the substrate.

Claims 26--50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. Patent No. 4,689,389; Fettes et al. Patent No. 2,789,958 Japanese Patent No. 62-158714 (Japanese '714) and Vietti et al. Patent No. 5,610,243 in view of German Patent No. 4,141,858; Lopez et al. Patent No. 3,411,940 and Japanese Patent No. 54-74898 (Japanese '898).

6. Lee et al. (col. 2, lines 8-15 and 45-48) reports the reaction of a stoichiometric excess of either an epoxy-terminated polymer such as preferably the liquid bisphenol A epoxy resins (col. 6, lines 22-28) or a mercaptan-terminated polysulfide reacted with each other at a temperature of from 10°C to 120°C.

7. Fettes et al. (col. 1, lines 15-17) discloses the reaction product of a polyepoxide such as a bisphenol A epoxy resin (col. 5, lines 6-9) and a polythiol polysulfide (col. 1, line 20 formula) in widely varying relative proportions (col. 5, lines 27-32) at a temperature of from 25°C to 150°C (col. 5, lines 45-47) in the presence of a catalyst such as diethylene triamine or methyldiethanol amine (col. 5, lines 58 and 63).

8. Japanese '714 (Derwent example) shows a polysulfide-modified epoxy resin prepared by reacting a bisphenol A diglycidyl ether with a thiol-terminated polysulfide at 90°C in the presence of a tertiary amine catalyst.

Art Unit: 1796

9. Vietti et al. (col. 2, lines 31-35) espouses the reaction of an epoxy resin such as a bisphenol F epoxy resin (col. 3, lines 59-60) or a mixture of two or more epoxy resins (col. 4, lines 1-2) and a mercapto-terminated polysulfide having the formula of claim 32 (col. 3, lines 1-8) in an epoxy:mercapto equivalent ratio of from 0.6:1 to 0.98:1 in the presence of a tertiary amine catalyst (col. 5, lines 29-34) at a temperature of from about 80°C to about 100°C (col. 5, lines 22-24).

The claimed quaternary ammonium catalyst is not recited.

10. The German patent teaches the reaction of a bisphenol A diglycidyl ether with an aliphatic dimercaptan at a temperature of from 100°C to 170°C in the presence of a quaternary ammonium salt.

11. Lopez et al. sets forth the reaction of a polyepoxide such as a glycidyl ether of bisphenol A (col. 3, lines 71-75 which are described in cited U.S. Patent No. 2,633,458 with a polymercaptan in the presence of a tertiary amine such as the methyldiethanolamine or diethylene triamine of Fettes et al. (col. 6, lines 19 and 23) or a quaternary ammonium chloride (col. 6, lines 14 and 28-30) as represented by the formula depicted in column 6, lines 45-54 wherein Y is nitrogen, the R substituents are C<sub>1</sub>-C<sub>12</sub> alkyl groups, and X is chlorine, thereby embracing the methyltrioctylammonium chloride of claim 43.

12. Japanese '898 is drawn to the use of Aliquat 336 (the trade name for methyltrioctylammonium chloride according to the specification on page 11, lines 16-17 as a catalyst for a bisphenol A epoxy resin.

Art Unit: 1796

13. It would have been obvious to employ the quaternary ammonium salts of the German patent and Lopez et al. such as the methyltrioctylammonium chloride of Japanese '898 in order to improve the cure rate based on the equivalency between the tertiary amine catalysts of Fettes et al., Japanese '714 and Vietti et al. and quaternary ammonium salts established in Lopez et al.

14. Although the sequences of adding the components of 39-42 are not recited, it would have been obvious to meter in either the polyepoxide or polysulfide into the other polymer wherein either the other polymer already contains the catalyst, or the catalyst is metered in along with the metered polymer, in order to control the reaction.

15. It would have been obvious to catalyze the reaction between the polysulfide and polyepoxide of the primary references at a pressure and temperature within the confines of claims 46-49 in order to hasten the reaction upon application to the substrate.

The prior art made of record and not relied upon is considered pertinent to the disclosure.

16. Japanese Patent Nos. 6-172492 and 3-273021 are directed to polysulfide-modified epoxy resins without mentioning their processes of preparation.

17. The Akzo Nobel data sheets identify the structural formula for Thioplast G44 and G112 used in Examples 1-3 on pages 11-12 of the instant specification.

18. Konarski Patent No. 6,617,399 establishes the date for the Thioplast polysulfides (col. 11, line 58 to col. 12, line 7) as the provision application filing date of December 17, 1999.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/Robert Sellers/

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3/5/2008